

FIG 1

10

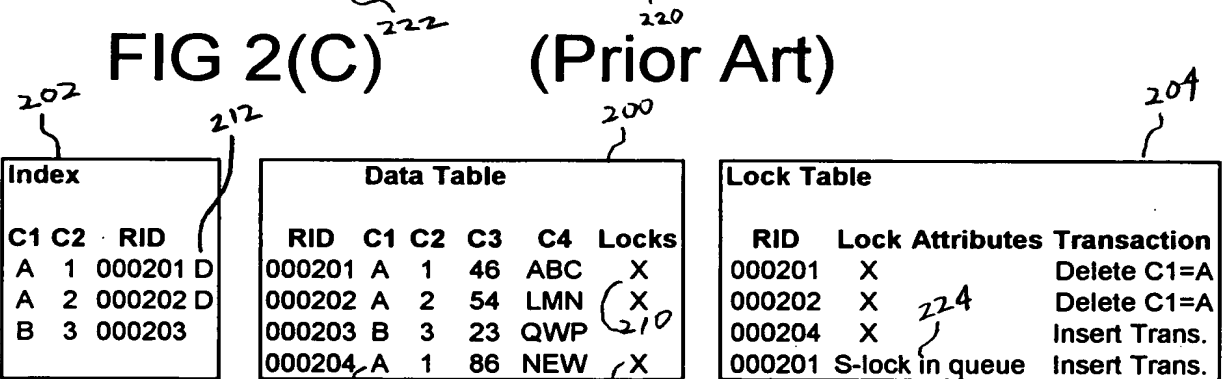
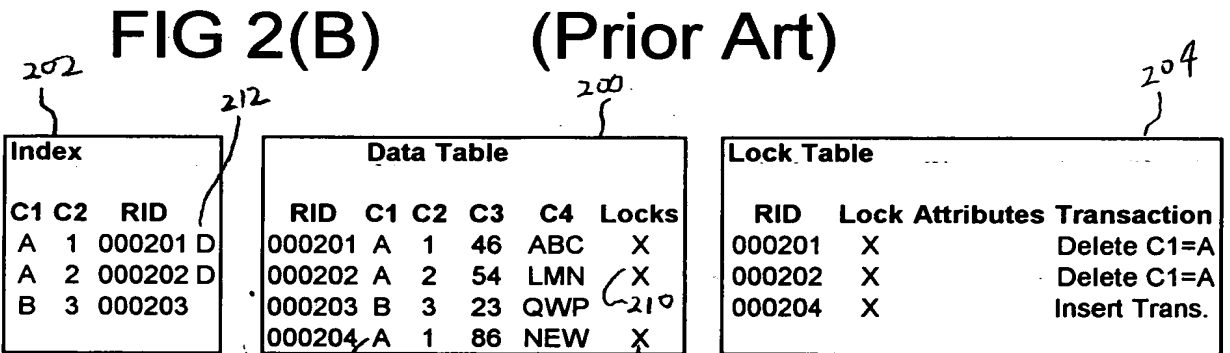
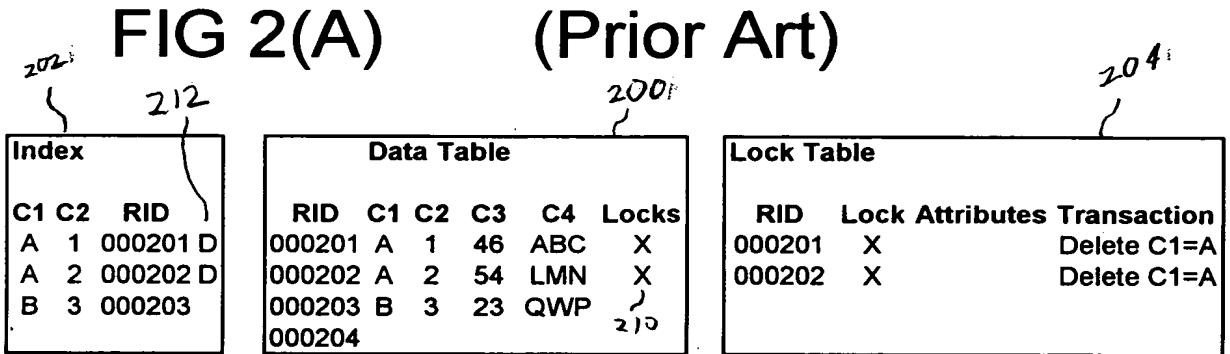
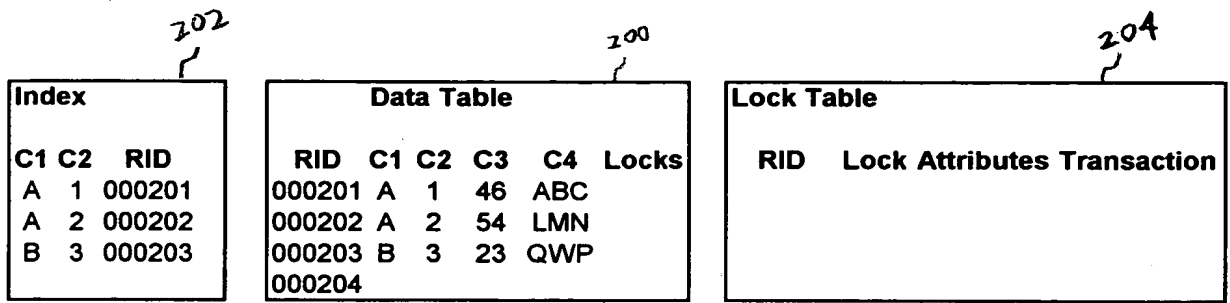


FIG 2(D) (Prior Art)

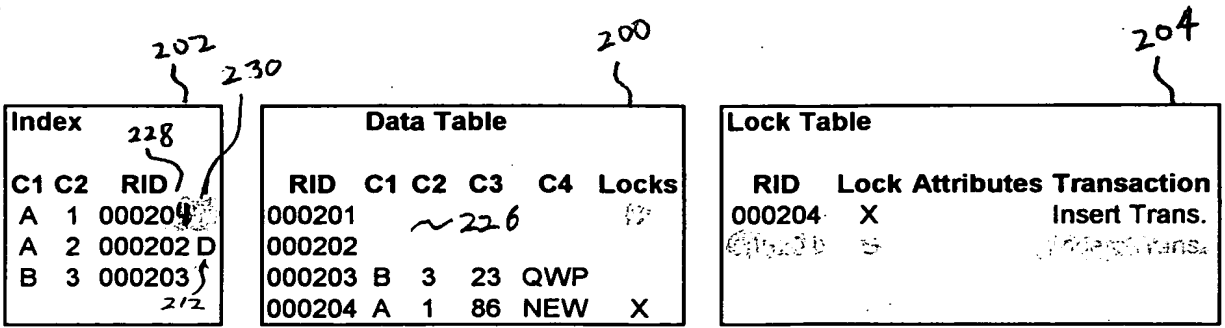


FIG 2(E) (Prior Art)

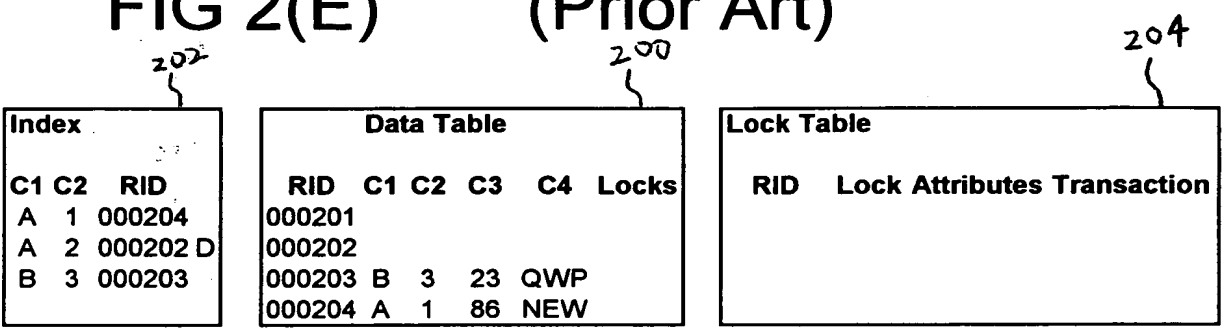


FIG 2(F) (Prior Art)

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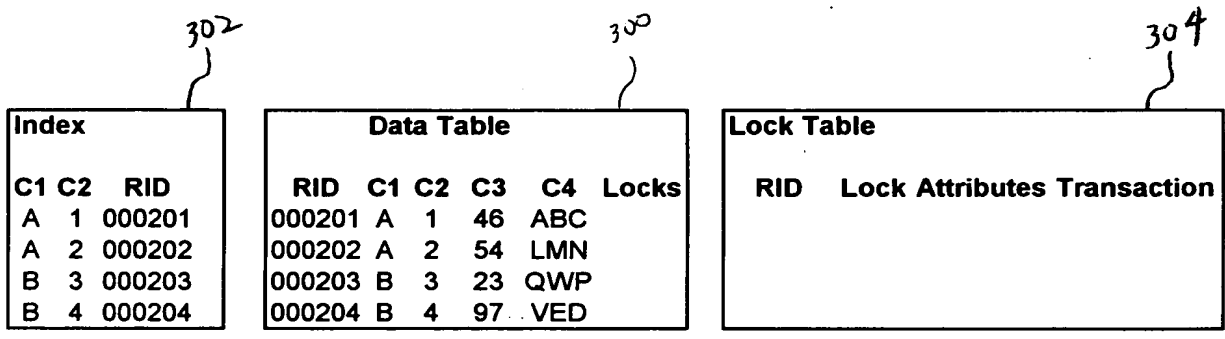


FIG 3(A) (Prior Art)

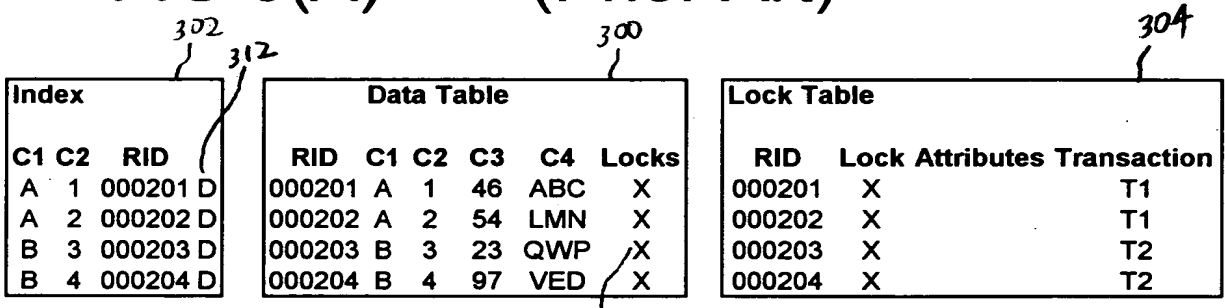


FIG 3(B) (Prior Art)

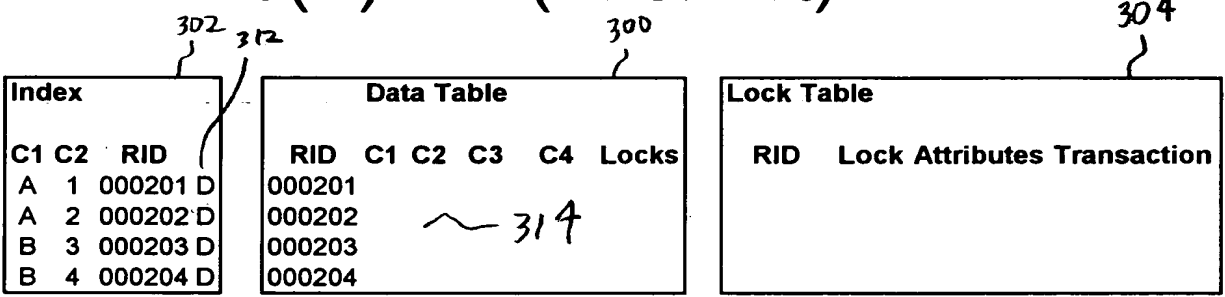


FIG 3(C) (Prior Art)

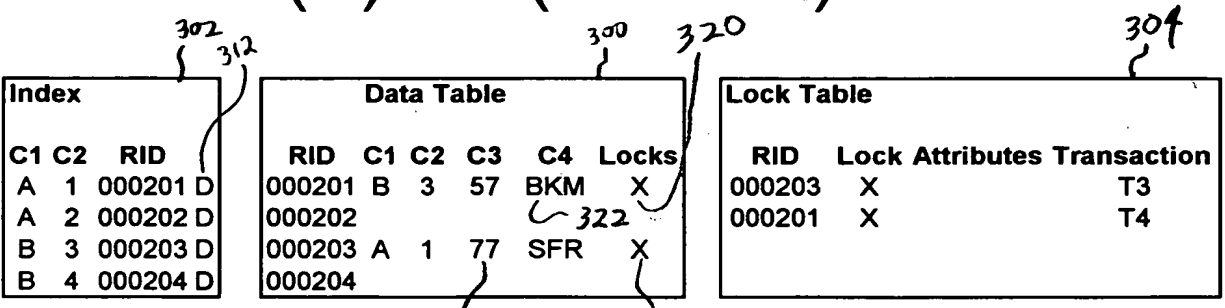


FIG 3(D) (Prior Art)

Index				Data Table							Lock Table			
C1	C2	RID		RID	C1	C2	C3	C4	Locks		RID	Lock	Attributes	Transaction
A	1	000201	D	000201	B	3	57	BKM	X		000203	X		T3
A	2	000202	D	000202							000201	X		T4
B	3	000203	D	000203	A	1	77	SFR	X		000201	S-lock in queue		T3
B	4	000204	D	000204										

FIG 3(E) (Prior Art)

Index				Data Table							Lock Table			
C1	C2	RID		RID	C1	C2	C3	C4	Locks		RID	Lock	Attributes	Transaction
A	1	000201	D	000201	B	3	57	BKM	X		000203	X		T3
A	2	000202	D	000202							000201	X		T4
B	3	000203	D	000203	A	1	77	SFR	X		000201	S-lock in queue		T3
B	4	000204	D	000204							000203	S-lock in queue		T4

FIG 3(F) (Prior Art)

402	400	404
<b>Index</b> C1 C2 RID A 1 000201 A 2 000202 B 3 000203	<b>Data Table</b> RID C1 C2 C3 C4 Locks 000201 A 1 46 ABC 000202 A 2 54 LMN 000203 B 3 23 QWP 000204	<b>Lock Table</b> RID Lock Attributes Transaction

FIG 4(A)

402	412	400	404
<b>Index</b> C1 C2 RID A 1 000201 D A 2 000202 D B 3 000203	<b>Data Table</b> RID C1 C2 C3 C4 Locks 000201 A 1 46 ABC X 000202 A 2 54 LMN X 000203 B 3 23 QWP 000204	<b>Lock Table</b> RID Lock Attributes Transaction 000201 X Delete Delete C1=A 000202 X Delete Delete C1=A 450	

FIG 4(B)

402	412	400	404
<b>Index</b> C1 C2 RID A 1 000201 D A 2 000202 D B 3 000203	<b>Data Table</b> RID C1 C2 C3 C4 Locks 000201 A 1 46 ABC X 000202 A 2 54 LMN X 000203 B 3 23 QWP 000204 A 1 86 NEW X	<b>Lock Table</b> RID Lock Attributes Transaction 000201 X Delete Delete C1=A 000202 X Delete Delete C1=A 000204 X 450 Insert Trans. 452	

FIG 4(C)

402	412	400	404
<b>Index</b> C1 C2 RID A 1 000201 D A 2 000202 D B 3 000203	<b>Data Table</b> RID C1 C2 C3 C4 Locks 000201 A 1 46 ABC X 000202 A 2 54 LMN X 000203 B 3 23 QWP 000204 A 1 86 NEW X	<b>Lock Table</b> RID Lock Attributes Transaction 000201 X Delete Delete C1=A 000202 X Delete Delete C1=A 000204 X Insert Trans. 000201 S-lock in queue Insert Trans. 424	

FIG 4(D)

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402

430

428

412

Index		
C1	C2	RID
A	1	000204
A	2	000202 D
B	3	000203

400

426

Data Table					
RID	C1	C2	C3	C4	Locks
000201					
000202					
000203	B	3	23	QWP	
000204	A	1	86	NEW	X

404

Lock Table			
RID	Lock	Attributes	Transaction
000204	X		Insert Trans.

FIG 4(E)

FIG 4(L)

402

Index		
C1	C2	RID
A	1	000204
A	2	000202 D
B	3	000203

400

Data Table					
RID	C1	C2	C3	C4	Locks
000201					
000202					
000203	B	3	23	QWP	
000204	A	1	86	NEW	

404

Lock Table			
RID	Lock	Attributes	Transaction

FIG 4(F)

502

Index		
C1	C2	RID
A	1	000201
A	2	000202
B	3	000203
B	4	000204

500

Data Table					
RID	C1	C2	C3	C4	Locks
000201	A	1	46	ABC	
000202	A	2	54	LMN	
000203	B	3	23	QWP	
000204	B	4	97	VED	

504

Lock Table			
RID	Lock	Attributes	Transaction

FIG 5(A)

502

512

Index

C1	C2	RID
A	1	000201 D
A	2	000202 D
B	3	000203 D
B	4	000204 D

500

Data Table

RID	C1	C2	C3	C4	Locks
000201	A	1	46	ABC	X
000202	A	2	54	LMN	X
000203	B	3	23	QWP	X
000204	B	4	97	VED	X

504

Lock Table

RID	Lock	Attributes	Transaction
000201	X	Delete	T1
000202	X	Delete	T1
000203	X	Delete	T2
000204	X	Delete	T2

FIG 5(B)

Index			Data Table						Lock Table			
C1	C2	RID	RID	C1	C2	C3	C4	Locks	RID	Lock	Attributes	Transaction
A	1	000201 D	000201									
A	2	000202 D	000202									
B	3	000203 D	000203									
B	4	000204 D	000204									

FIG 5(C)

502

Index

512

C1	C2	RID
A	1	000201 D
A	2	000202 D
B	3	000203 D
B	4	000204 D

500

Data Table

RID	C1	C2	C3	C4	Locks
000201	B	3	57	BKM	X
000202			522		520
000203	A	1	77	SFR	X
000204					

504

Lock Table

RID	Lock	Attributes	Transaction
000203	X		T3
000201	X	552	T4

FIG 5(D)

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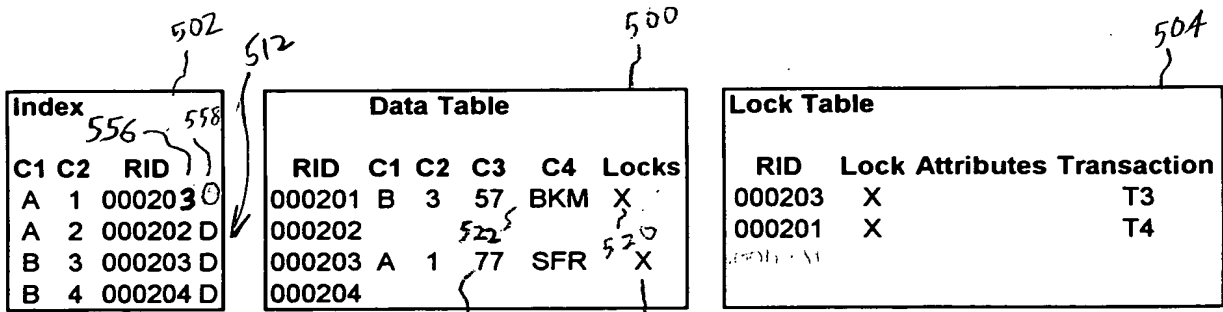


FIG 5(E)

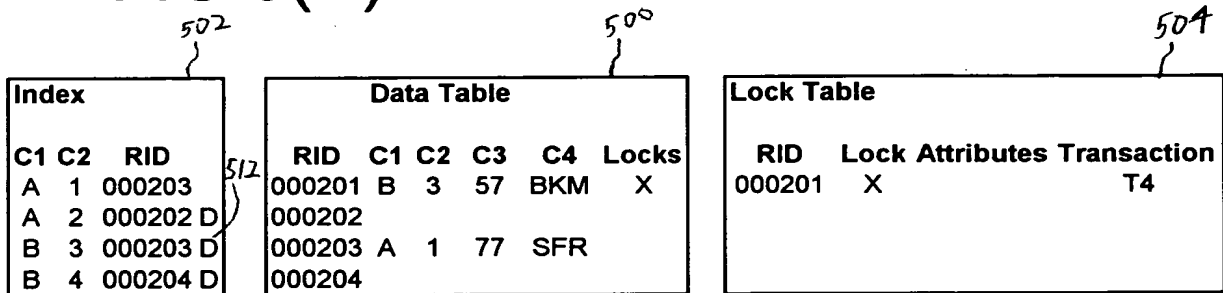


FIG 5(F)

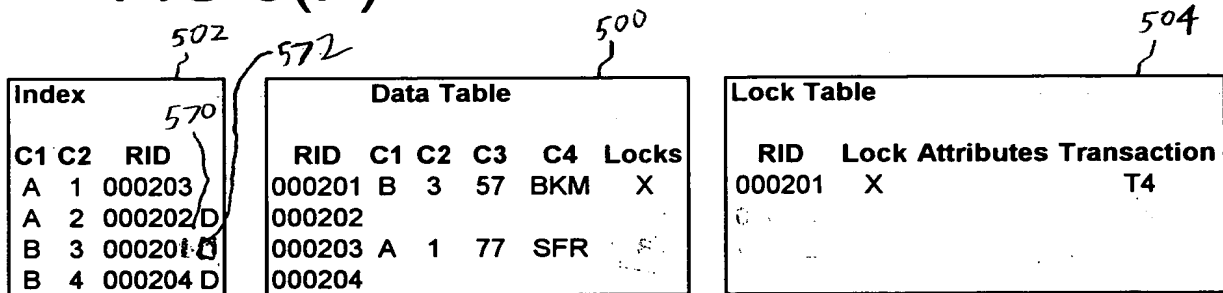


FIG 5(G)

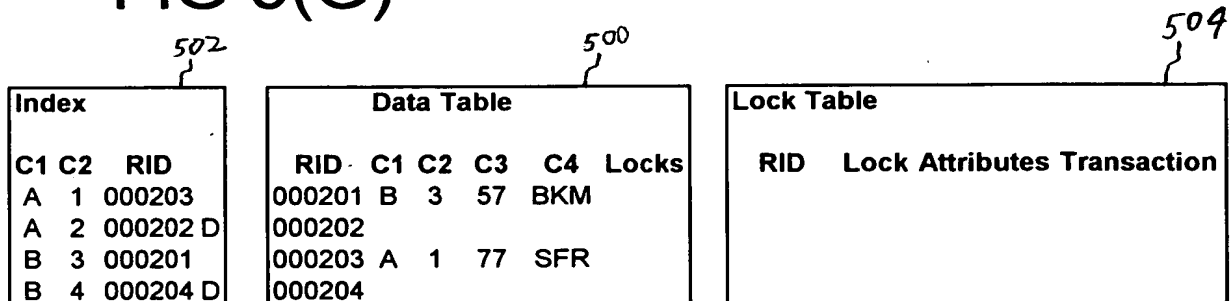


FIG 5(H)

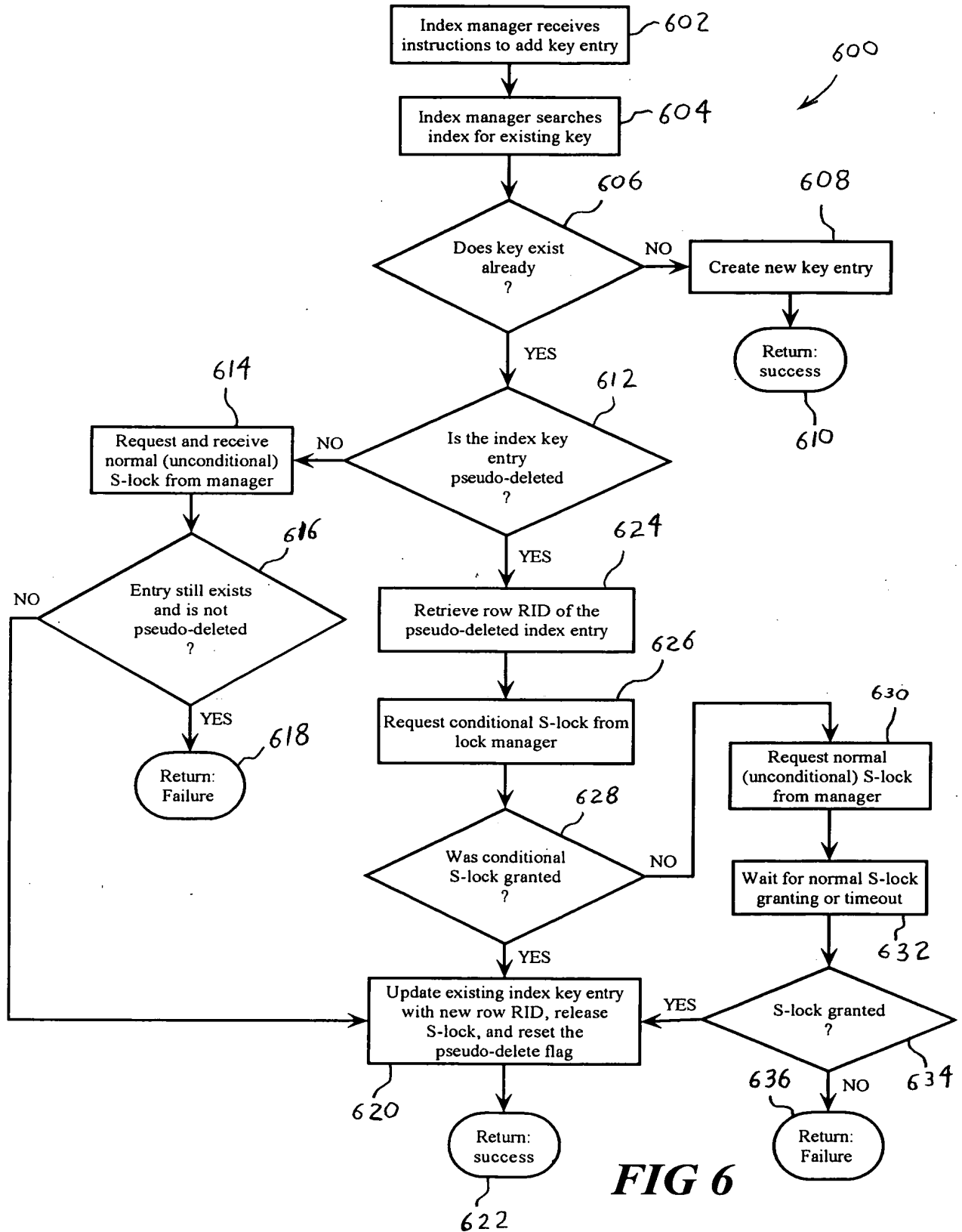


FIG 6